MASS. ED21.2:Us4/2/986

CHAPTER 188

November 1988

Massachusetts
Educational
Assessment
Program

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Using the School Report

MASSACHUSETTS DEPARTMENT OF EDUCATION

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Publication #15710-33-4000-10-88 C.R. Approved by Ric Murphy, State Purchasing Agent.

USING THE SCHOOL REPORT

Elizabeth Badger
Massachusetts Educational Assessment Program

MASSACHUSETTS DEPARTMENT OF EDUCATION
NOVEMBER 1988

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The assistance and cooperation of Allan Hartman, of the Office of Planning, Research and Evaluation, Richard Hill of Advanced Systems, and the schools which supplied information on their use of assessment results are gratefully acknowledged.

CHAPTER ONE
INTRODUCTION

The Massachusetts Educational Assessment Program (MEAP), which you administered last spring, is different from the testing programs that schools usually administer to their students. In order to understand how the assessment results can be useful, it is important to understand the ways in which these programs differ and why.

Standardized achievement tests are **not** designed to measure the effectiveness of your instructional program or the specific learning problems of individual children. They are designed to give a general indication of the performance of individual students. They accomplish this by reporting performance in relation to some established norm.

This purpose determines both the content of the test and the way items are chosen. For example, because standardized achievement tests are designed to be used in many different types of schools throughout the country, with many different instructional programs, their content must reflect the basic knowledge and skills that are common to the curriculum of all schools. Secondly, because standardized tests must give reliable results for individual students, the statistical character of test questions is of paramount importance in their selection. Items are chosen on the basis of their power to discriminate among students. They must be highly correlated and of moderate difficulty. Items that may be of interest in terms of their content are eliminated if they do not conform to these statistical expectations.

Assessment tests, such as the Massachusetts Educational Assessment Program tests, have a different purpose. They are not designed to give information about individual students; they are designed to give information about the effectiveness of the curriculum. They do not measure what is taught at a particular grade level or is commonly taught among districts, but they cover as much as possible of the subject area domains that students might be expected to learn up to the grade level tested. To accomplish this purpose, their content must be much broader than that of standardized achievement tests, encompassing the many different kinds of knowledge and thinking processes that reflect the content area. In order to provide this broad coverage, large numbers of test questions must be used. In the case of the MEAP, these questions are distributed across many different test forms, with each student completing only one form of the entire test.

Aspects of test design, such as item statistics which determine the acceptability of items on standardized tests, are of less concern in an assessment. Because the results are reported in terms of a collection of students, individual differences in student responses tend to cancel each other out. For this reason, the average obtained over many different kinds of items by a group of students tends to be highly reliable. In other words, the test results of a group of students who have been exposed to a curriculum is considered a good indication of the effectiveness of that curriculum.

Because, at a state-wide level, it is clearly impossible to reflect the individuality of all the schools in the Commonwealth, this booklet has been designed to help you use the results of the assessment to evaluate your own curriculum. The assessment results are reported in a variety of ways. Some may be more helpful to you than others. In this booklet, we explain the various ways in which types of information have been reported and suggest ways that you might use them in program evaluation.

Chapter Two provides background on the assessment program, discussing its intent and how that purpose has been carried out. In Chapter Three, we review the various scores in the report, demonstrating the kinds of comparisons that you can make. In Chapter Four, we suggest a process by which you can use the results to examine the effectiveness of your own program. Finally, in Chapter Five, we give some examples of schools that used the 1986 assessment results as a means of program improvement.

The purpose of the assessment is to provide information to schools, information that is often costly or impossible to obtain within the system itself. The process should not stop there, however. In a certain sense, the assessment reports which you have received should represent only a beginning. They should be used not to give answers but to generate questions. The purpose of this handbook is to help you understand the kinds of questions that can be asked and the ways in which answers can be found.

CHAPTER TWO
BACKGROUND: THE MASSACHUSETTS EDUCATIONAL ASSESSMENT PROGRAM

The Massachusetts Educational Assessment Program was established in 1985 as one of a number of programs designed to improve curriculum and instruction in the public schools in Massachusetts. Under the mandate by which it was established, it is designed with two purposes:

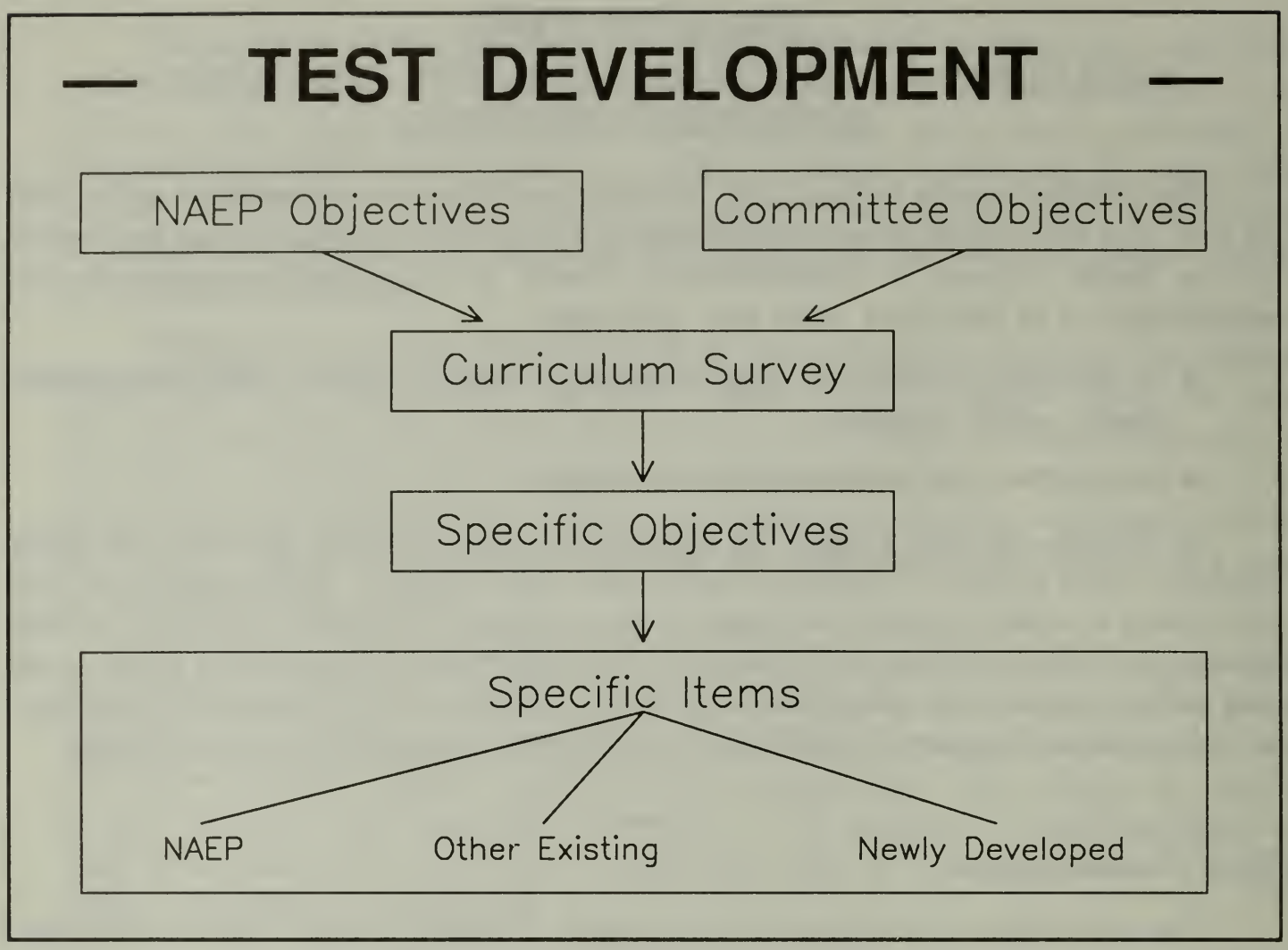
- to provide comparisons of peformance at school, district, state and national levels, when possible;
- to improve curriculum and instruction.

In 1985-86, the first year of the assessment, third, seventh and eleventh grade students were tested in reading, mathematics and science. In the spring of 1988 the grades at which students were tested were changed to fourth, eighth and twelfth grades, and social studies was added to the subject areas tested. These grade levels and subject areas were consistent with those targeted by the National Assessment of Educational Progress (NAEP) so that national comparisons can be made.

Test Development

The objectives which form the framework for each content area are described in a separate publication, *Description of Test Content and Reporting Categories*. These objectives are arrived at through an iterative process that involves national curriculum experts, state curriculum experts, the Department of Education and the schools themselves.

Initially, the Curriculum Advisory Committees, composed of teachers and curriculum coordinators throughout the state, review the set of objectives drawn up by the National Assessment of Educational Progress, as well as those from other sources. The Committees use this material to construct a tentative objectives framework for each subject, including the major content areas and types of thinking that are considered to be the essential components for achievement within that discipline. They also draw up a list of content topics for consideration by schools. All schools are asked to react to this list by rating each topic in terms of its importance for student learning by the target grade level (4, 8, 12). Committees then use the results of this survey to finalize the objectives framework and to decide what specific aspects of knowledge or skills should be included within each specific subcategory of the framework. Test questions are then drawn from the National Assessment of Educational Progress (NAEP) and other sources, or are newly written in order to reflect the stated objectives. The committees contribute, review and approve all items before they are used in the tests.



Other Information

In addition to the cognitive tests, a series of student, teacher and principal questionnaires are also developed using a similar process. Many of the questions are identical to those used by NAEP and other national programs; others are designed by the Department, with the advice of the Curriculum Advisory Committees. Responses to the student questionnaires are primarily used to interpret test results. They form the basis for the Comparison Score Bands and are included in the school reports as additional information to schools. Responses to the teacher and principal questionnaires are aggregated and reported at the state level. Their primary use is in the exploration of policy and curriculum issues; however, they are also used as indicators of the overall quality of education in Massachusetts, particularly in terms of national comparisons.

CHAPTER THREE
MAKING COMPARISONS

Schools have many ways to chart the progress of individual students: teacher observations, classroom tests, homework assignments, student projects, and standardized tests. However, it is far more difficult for a school or district to step back and chart its own course. When schools ask "How effective is our program? Are we doing the best job possible?", there are few tools at hand for judging their progress.

One way to measure a school's achievement is to compare the total performance scores of its students with those of students in other schools or the state as a whole. Another way is to look at the performance of students in similar schools. Another is to look internally, at performance among groups of students within the school. The school report which you have received gives information on all these ways, and more. The purpose of this chapter is to demonstrate the kinds of comparisons you can make and to help you in interpreting their meaning.

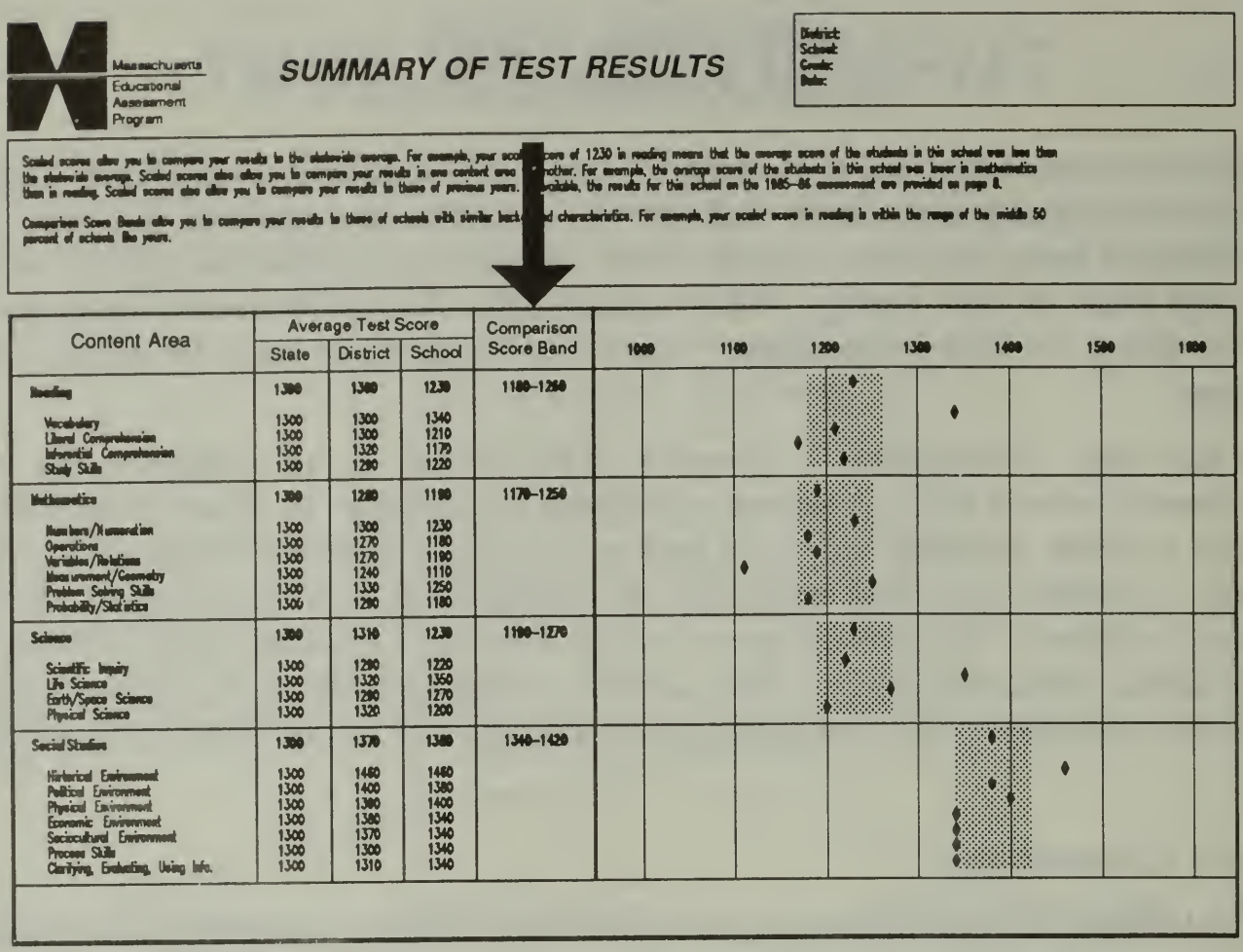
Overall Comparisons

In looking at your report, the first and most obvious questions will probably be: *How does our student performance compare with some sort of standard? On the average, are we performing better or worse?* There are different ways to answer these questions, depending upon the standard chosen.

1. Comparisons with your district and the state

On page 5 of your school report you will find the scaled scores which your students achieved in each of the four subject areas tested. Scores are given not only for the entire content area but for each of the subcategories that appeared on the test. Your score in these content areas will tell you how students in your school performed on these tests in comparison to your district and to the state as a whole.

In order to make meaningful comparisons among schools, across subject areas, and between years, these scores are scaled. That is, the percentage of correct responses is transformed to a common measure, which is based on the normal distribution. The mean state score is set at 1300, with 68% of school scores lying between 1200 and 1400. Sixteen percent of the scores are below 1200, and another 16% are above 1400. Because the standard deviation is set at 100 points, scores that differ by less that 50 points should not be considered substantially different or educationally meaningful.



Massachusetts Educational Assessment Program

SUMMARY OF TEST RESULTS

District:
School:
Grade:
Date:

Scaled scores allow you to compare your results to the statewide average. For example, your score of 1230 in reading means that the average score of the students in this school was less than the statewide average. Scaled scores also allow you to compare your results in one content area to another. For example, the average score of the students in this school was lower in mathematics than in reading. Scaled scores also allow you to compare your results to those of previous years. If available, the results for this school on the 1985–86 assessment are provided on page 8.

Comparison Score Bands allow you to compare your results to those of schools with similar background characteristics. For example, your scaled score in reading is within the range of the middle 50 percent of schools like yours.

Content Area	Average Test Score			Comparison Score Band
	State	District	School	
Reading	1300	1300	1230	1180–1260
Vocabulary	1300	1300	1340	
Literal Comprehension	1300	1300	1210	
Inferential Comprehension	1300	1320	1170	
Study Skills	1300	1290	1220	
Mathematics	1300	1280	1190	1170–1250
Numbers/Numeration	1300	1300	1230	
Operations	1300	1270	1180	
Variables/Relations	1300	1270	1190	
Measurement/Geometry	1300	1240	1110	
Problem Solving Skills	1300	1330	1250	
Probability/Statistics	1300	1290	1180	
Science	1300	1310	1230	1190–1270
Scientific Inquiry	1300	1290	1220	
Life Science	1300	1320	1350	
Earth/Space Science	1300	1290	1270	
Physical Science	1300	1320	1200	
Social Studies	1300	1370	1380	1340–1420
Historical Environment	1300	1460	1460	
Political Environment	1300	1400	1380	
Physical Environment	1300	1380	1400	
Economic Environment	1300	1380	1340	
Sociocultural Environment	1300	1370	1340	
Process Skills	1300	1300	1340	
Clarifying, Evaluating, Using Info.	1300	1310	1340	

1000 1100 1200 1300 1400 1500 1600

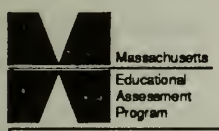
2. Comparisons with similar schools

On page 5 you will also find your Comparison Score Band, which will help you compare the scores of your students with those of other students **in schools like yours**. Comparison Score Bands are determined by relating certain student background factors (such as parental education, English fluency, length of residence in the United States) and certain community factors (such as percentage of students receiving free or reduced price lunch and Kind of Community) to performance on the assessment. The relative influence of each factor on performance is determined for the state as a whole, and the resulting formula is used to compute the Comparison Score Band for each individual school. (See page 7 of your report for a comparison of the values of those background factors between your school and the state and district.) Since all schools differ with respect to the factors involved, each school has its unique Comparison Score Band. Its width reflects its reliability and is determined in large part by the number of students in the school.

Comparison Score Bands are an important reference point. They acknowledge the fact that factors beyond the control of schools affect students' academic performance. However, it is important to remember that they are not prescriptive; they are normative. In other words, they do not indicate where a school **should** score, but only where it might be **expected** to score given the background factors involved. On the other hand, scores that fall below the band should be examined carefully. They indicate that, in those areas, your students performed less well than other students with similar economic and social backgrounds.

In a separate document, the average scores for schools in each Kind of Community (KOC) are given. Schools are grouped into KOCs according to different economic factors in their communities. Unlike Comparison Score Bands, KOCs do not reflect the background factors of the actual students who took the test and are, therefore, grosser measures of similarity. Their advantage lies in the fact that communities within each KOC are named and described. On the other hand, a list of schools or districts with Comparison Score Bands similar to yours is available from the Department should you desire it.

3. Comparisons with previous assessment results



SUMMARY OF 1986 RESULTS

District:
School:
Grade:
Date:

Students Tested

Student Category		State		District			School		
		[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]
Bilingual	Included	71%	3%	0	0%	0%	0	0%	0%
	Excluded	29%	N/A	0	0%	N/A	0	0%	N/A
Special Education	Included	50%	4%	19	63%	13%	19	63%	13%
	Excluded	50%	N/A	11	17%	N/A	11	17%	N/A
Other	Included	96%	93%	132	100%	87%	132	100%	87%
	Excluded	4%	N/A	0	0%	N/A	0	0%	N/A
Total enrollment	Included	92%	100%	170	94%	100%	170	94%	100%
	Excluded	8%	N/A	11	6%	N/A	11	6%	N/A

Average Scaled Scores

Content Area	Average Value			Comparison Score Band
	State	District	School	
[illegible]	1300	1400	1400	1320–1380
Vocabulary	1300	1400	1400	
Comprehension	1300	1410	1410	
Study Skills	1300	1330	1330	
[illegible]	1300	1360	1360	1310–1380
Numeration	1300	1330	1330	
Operations	1300	1350	1350	
Variables/Relations	1300	1340	1340	
Measurement	1300	1370	1370	
Geometry	1300	1410	1410	
Problem Solving Skills	1300	1340	1340	
Probability/Statistics	1300	1370	1370	
Science	1300	1310	1310	1320–1380
Scientific Inquiry	1300	1320	1320	
Life Sciences	1300	1280	1280	
Earth/Space Sciences	1300	1310	1310	
Physical Sciences	1300	1280	1280	
Science and Society	1300	1370	1370	

Student Score Distribution

Content Area	Quarter	Students in Each Quarter of the State Student Distribution				
		State	District		School	
		%	N	%	N	%
Reading	Highest	25%	52	36%	52	36%
	Third	25%	47	32%	47	32%
	Second	25%	29	20%	29	20%
	Lowest	25%	18	12%	18	12%
Mathematics	Highest	25%	50	34%	50	34%
	Third	25%	38	26%	39	26%
	Second	25%	40	27%	40	27%
	Lowest	25%	19	13%	19	13%
Science	Highest	25%	32	22%	32	22%
	Third	25%	44	30%	44	30%
	Second	25%	34	23%	34	23%
	Lowest	25%	35	24%	35	24%

Background Factor Summary

Background Factor	Average Value		
	State	District	School
Mother's Education Index	2.38	2.43	2.43
Father's Education Index	2.41	2.58	2.58
Family Language Index	0.86	0.98	0.98
U.S. Residency Index	0.82	0.99	0.99

On page 8 of your report we give the results of the first assessment in 1986. Although they are not directly comparable to this year's results, they can be used in your evaluation.

Since the purpose of the assessment is to measure the effectiveness of your curriculum, it is designed to reflect the cumulative process of education. In other words, the performance of your students at grade 4 is the result not only of their instruction at grade 4, but of their previous schooling. For this reason, consistent areas of strengths or weaknesses within the two grades at any of the levels tested in the two years is stronger evidence than can be offered by either. When results converge, they have increased reliability. On the other hand, because learning is cumulative, recent program changes may not be immediately apparent in these overall results. The specific curriculum area results found on pages 10 to 13 of your report are probably a better indicator of program effectiveness.

Internal Comparisons

Although overall comparisons are a good way to start the process, they are just that—comparisons in terms of a total scaled score. To use the assessment results effectively, they must be examined in terms of your own students and your own curriculum. The fact that a school has performed well in comparison to the state or district score gives very little useful information in itself. Performance must be measured in terms of the school's own goals and objectives.

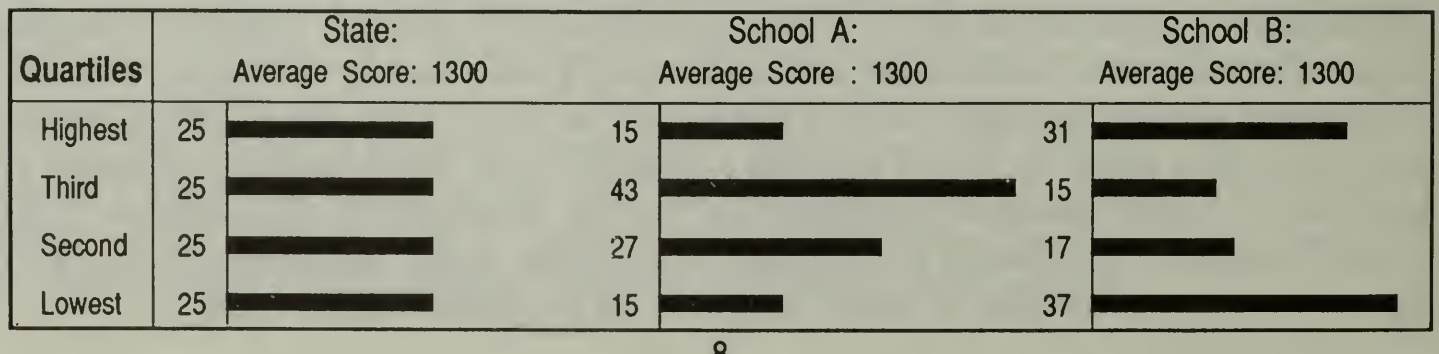
1. Comparisons among groups of students

The distribution of scores in your school gives an indication of how well you are serving different groups of students. This information is given on page 7, where the number of your students in each quartile is compared with the state and district.

Student Score Distribution

Content Area	Quarter	Students in Each Quarter of the State Student Distribution				
		State	District		School	
		%	N	%	N	%
Reading	Highest	25%	40	22%	22	24%
	Third	25%	40	22%	20	22%
	Second	25%	50	28%	17	19%
	Lowest	25%	50	28%	17	19%
Mathematics	Highest	25%	40	22%	5	6%
	Third	25%	45	25%	11	12%
	Second	25%	45	25%	44	49%
	Lowest	25%	50	28%	30	33%
Science	Highest	25%	30	17%	11	12%
	Third	25%	60	33%	21	23%
	Second	25%	60	33%	30	33%
	Lowest	25%	30	17%	28	31%
Social Studies	Highest	25%	45	25%	12	13%
	Third	25%	45	25%	40	44%
	Second	25%	50	28%	21	23%
	Lowest	25%	40	22%	17	19%

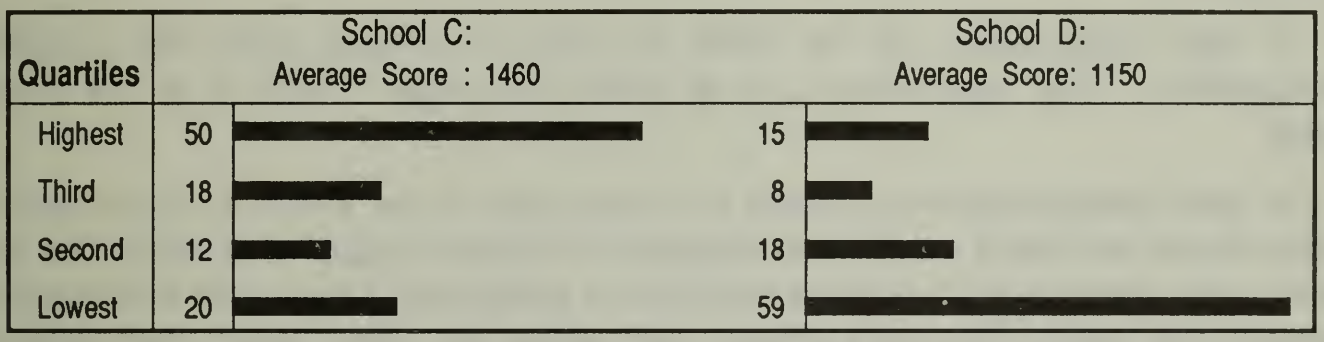
The distribution of student scores will give a profile of your school's performance. It will help in your interpretation of total subject scores and may help you to identify groups of students who are atypical. For example, schools with the same overall score can have very different distributions of students in each quartile, which will indicate different areas to be examined.



Although the majority of schools that score at or close to the state average of 1300 generally follow the expected distribution, this is not necessarily the case. For example, contrast the profiles of School A and School B, both of which received close to 1300 in the 1986 assessment of Reading.

The distribution of scores for School A suggests a fairly homogeneous group of students. Over 70% of student scores are within the second and third quartile (in contrast to 50% of the state as a whole). In fact, with 58% scoring at or above the state average, the school score of 1300 slightly underestimates the scores of its students.

In contrast, the distribution of scores for School B highlights the difference in performance between two groups within the same school. The number of students at each extreme is sizable and raises questions about the instructional programs that have been developed for their differing needs. Whereas the score of 1300 may suggest that performance in this school is "average," the distribution indicates that this is not the case.



Although the two schools above appear to perform quite differently in terms of their total scores, in both cases a substantial proportion of students performed at a level that was not reflected in that score. They illustrate the fact that an average masks the variation in scores that can occur within a school population. Whatever a school's total score may be, usually a number of students perform significantly better or worse than that score would indicate. For example, although the average score for School C would indicate a very high performance level when compared with the state as a whole, fully 20% of their students, or 1 in 5, are performing at the lowest end of the scale. Conversely, 15% of the students in School D, whose average score was at the lower end of the state distribution, performed very well.

The purpose of these examples is to illustrate the need to examine the distribution of scores within your school carefully. When an atypical number of students are scoring in the lower quartiles of the distribution, questions that administrators might ask are:

- *Is this pattern reflected across all the subject areas or does it reflect a particular handicap, such as lack of language proficiency?*
- *Is this pattern confirmed by results in the Basic Skills Testing Program? Have the low scoring students been identified?*

- *How successful is our remedial program? Are we stressing only low level skills in a single content area to the detriment of knowledge in other areas?*
- *Are these students receiving the proper support? Challenges?*

Conversely, when the distribution shows an atypical number of students in the upper quartiles, administrators might ask:

- *Is this distribution reflected in scores on other tests?*
- *Have these high scoring students been identified?*
- *Do their scores reflect the results of a particular program (acceleration, Gifted and Talented, Advanced Placement)? If not, should there be a program for these students?*

2. Comparisons among students in terms of course work and program participation

A final comparison can be made in terms of course work and program participation. This information can be found on pages 7 and 15 of the school report.

In your interpretation of scores it is important to be aware of the extent to which scores are based on the performance of different types of students. As you know, some categories of students who do not participate fully in the entire school program are tested. Not surprisingly, their scores are often lower than those of other students. Since schools differ in the proportion of their populations who have special needs or who lack proficiency in English, the relative influence of the scores of these students differs from school to school.

When interpreting your results it may be helpful to ask the following questions in regard to program participation:

- *How does the number of students in special programs (Special Education or Bilingual) in this school compare with that of the rest of the state and the district? Are we excluding a disproportionate number of those students from the assessment?*
- *To what extent does our total score reflect the performance of students in special programs (Special Education or Bilingual)?*
- *How does the performance of these students compare with others throughout the state? Based on these results, are we satisfied with our program? When we exclude students who fall into these categories from our total score, how do we compare with other schools in the state or district?*

For high school administrators and curriculum evaluators, scores are also given for students in different courses. Although we do not report the appropriate sub-category score for these students, their total subject scores are given with reference to those obtained by similar students throughout the state.

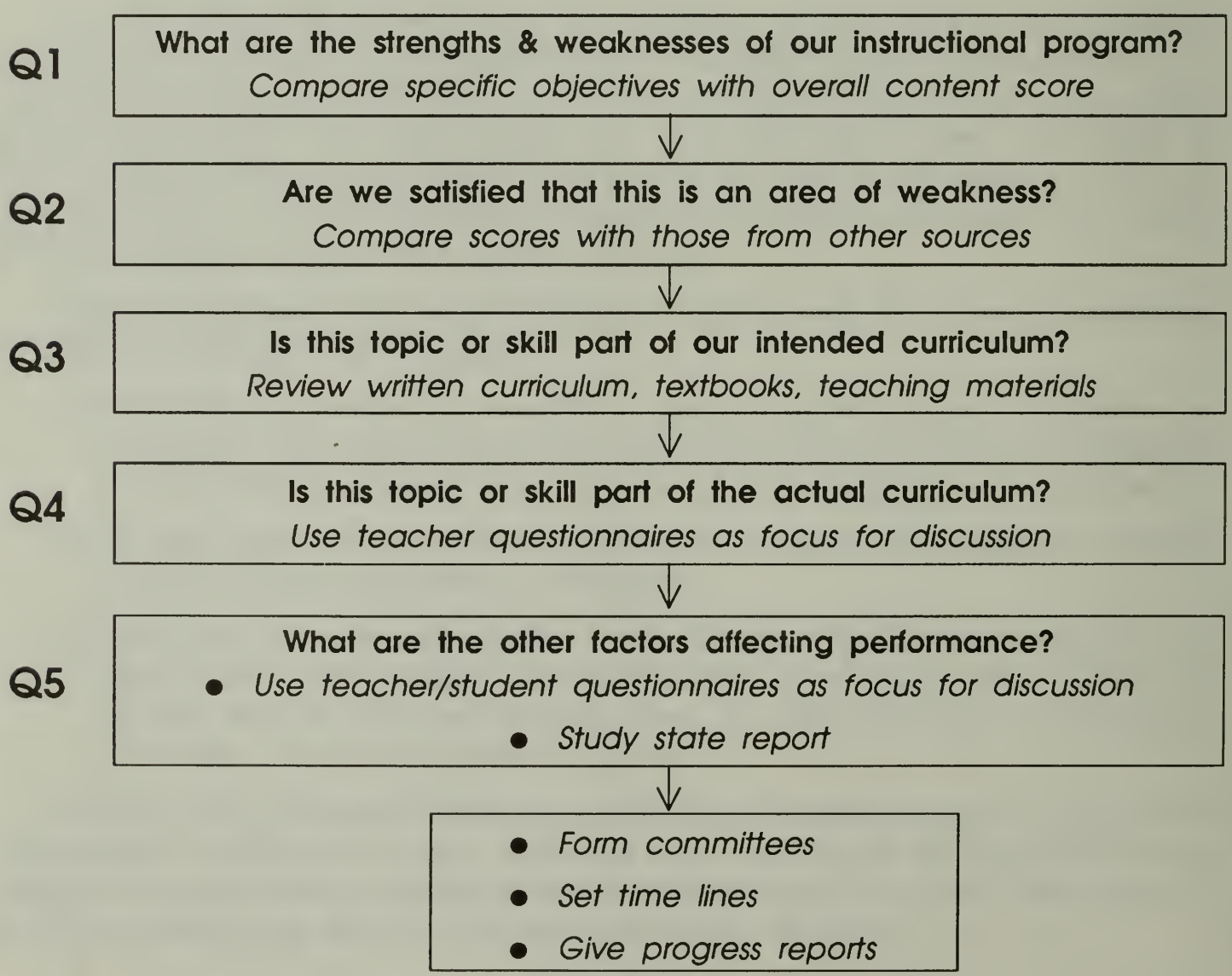
The comparisons suggested above are merely different lenses through which you can view the assessment results. Taken together, they should give you a "feel" for what your score reflects. They acknowledge the fact that schools are not factories, turning raw material into finished products, but are institutions devoted to children with different problems and needs. Any achievement score is the result of the interaction between the curriculum and instruction that a school delivers and the children which it services. It is relative, not only numerically but in terms of what it represents, since it is based on different groups of students.

CHAPTER FOUR
DEVELOPING AN ACTION PLAN

It is not the purpose of this handbook to tell you how to improve curriculum and instruction. There are other, better sources for this. Instead, its purpose is to help you use the assessment reports to look at your curriculum and instruction and to ask the right questions. The answers to these questions must come from you, with the help of your staff and other interested individuals.

In setting priorities, it is important to review your entire program. Although comparisons with state and district give relative performance, in no sense do they indicate how well your students have performed in any absolute sense. This is because the assessment is not a competency test; it does not put forth specific objectives which we believe that all students should master. Unlike Basic Skills testing, there is no absolute standard of knowledge involved. As a corollary to this, a relatively high total score on the assessment does not indicate a uniformly superior program. In order to judge how your program can be improved, it is necessary to look at the specific curriculum area results for indications of strengths and weaknesses.

Developing An Action Plan


Q1
What are the strengths & weaknesses of our instructional program?
Compare specific objectives with overall content score
Q2
Are we satisfied that this is an area of weakness?
Compare scores with those from other sources
Q3
Is this topic or skill part of our intended curriculum?
Review written curriculum, textbooks, teaching materials
Q4
Is this topic or skill part of the actual curriculum?
Use teacher questionnaires as focus for discussion
Q5
What are the other factors affecting performance?
• Use teacher/student questionnaires as focus for discussion
• Study state report
• Form committees
• Set time lines
• Give progress reports

Question 1: What are the strengths and weaknesses of our instructional program?

Scores for the subcategories within each subject area are reported on pages 10 through 13 of the report. The number of items used is also listed. Examples of the actual items are given in the *Description of Test Content and Reporting Categories*, which should be in your school but is also available from the Department of Education.

The first step in evaluating your program is to examine your performance on the various components of the assessment. Within most subject areas, the assessment material has been classified according to content and to the type of thinking required. In the area of Reading, the categories reflect components of reading and the kind of passage on which the questions were based. Whatever your total score, it is important to start your evaluation by examining the individual categories.

Massachusetts Educational Assessment Program

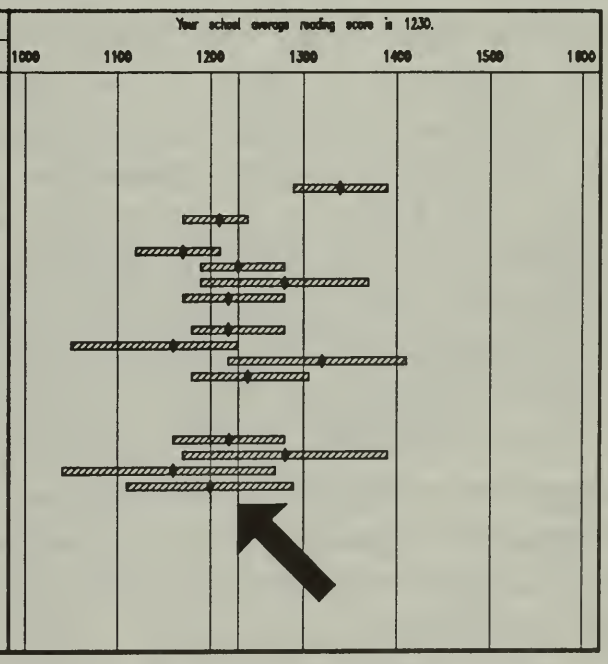
CURRICULUM AREA RESULTS

District:
School:
Grade:
Date:

The scaled scores for this school are presented on this page and the three pages that follow. The scaled score for the school and the number of questions that were included in the assessment are provided for each objective measured by the assessment. On the graphic display, the scaled score is shown as a diamond, and the measurement error associated with that score as a bar to both sides of the diamond. For example, your scaled score of 1340 in Vocabulary is shown as a diamond.

When the measurement error bars for two content areas overlap, the differences between them should be considered not statistically significant. When two diamonds are within 50 points of each other, the differences between them should be considered not educationally significant.

Reporting Category	Number of Questions	Average Test Score		
		State	District	School
READING				
CONTENT AREAS				
I. Vocabulary	23	1300	1300	1340
II. Literal Comprehension	17	1300	1300	1210
III. Inferential Comprehension	129	1300	1320	1170
A. External Perspective	42	1300	1300	1230
B. Internal Perspective – Analyzing Text	43	1300	1340	1280
C. Internal Perspective – Evaluating Ideas	35	1300	1290	1220
IV. Study Skills	41	1300	1270	1220
A. Using Reference Materials	15	1300	1260	1160
B. Following Directions	13	1300	1330	1320
C. Summarizing/Organizing	13	1300	1260	1240
PASSAGE TYPES				
I. Literary	73	1300	1320	1220
II. Content	64	1300	1330	1280
III. Practical	43	1300	1310	1160
IV. non-passage related	21	1300	1320	1200



In the visual display, the diamond indicates the score which your students received, while the bar indicates the relative precision of that score. You will notice that some bars are longer than others. This is a function of three factors: the number of students in your school who took the tests, the number of questions in that category, and the percentage of students answering each item. It is an acknowledgment of the fact that scores achieved on a test are only estimates of performance and that some scores are more precise than others. As a consequence, the general rule in comparing scores is to pay particular attention only to those scores which do not overlap the bars.

The simplest way to identify areas of weakness in each subject area is to use the total score as a reference and draw a vertical line from that point. You can then note how the bar for each subskill lies in relation to that line. Bars that fall to the right of the line represent relative strengths, while those that fall to the left signify relative weaknesses.

Qustion 2: Are we satisfied that this is an area of weakness?

- *Do other test scores verify the assessment scores?*
- *Do teacher judgments confirm results?*
- *Is there other evidence to confirm results?*

Whether a subcategory can be considered an area of weakness is a matter of judgment. That judgment rests on a number of factors which should be considered by your curriculum area experts and the teachers involved.

For most schools the assessment results are one of many sources of information on school performance. Commercial standardized test results are available, as are scores on department-wide tests and classroom measures. The extent to which information obtained from these other sources converges is a measure of its validity.

On the other hand, the assessment may point to weaknesses that exist but are not measured by other instruments. The assessment was designed to cover a broad range of knowledge and types of thinking that are representative of each subject area. As a result it measures, along with more traditional skills, certain strategies and kinds of thinking that, although considered important by content area experts, are not explicitly taught or tested in some schools. For example, the metacognitive skills that are included in our reading framework are a departure from standardized reading tests. Although this particular innovation was designed to make the assessment results more relevant to instruction and more in keeping with current research on the reading process, achievement in this area may not be congruent with scores obtained on more traditional reading tests. This lack of congruence is an important consideration in interpreting test results. Unless a test is aligned with the instructional program, it will not be sensitive to effects of that program.

Curriculum evaluation is not a mechanical process that can be followed through a series of check-lists. Basically, it is a matter of examining the evidence and making informed judgments. For this reason, when choosing an area for curriculum improvement, it is important to examine the various sources of information carefully before deciding where resources should be placed.

Question 3: Is this topic or skill part of our intended curriculum?

- *Does this topic or skill form part of our written objectives?*
- *Is it covered adequately in the textbooks and curriculum guides?*
- *Is instruction supported by currriculum materials and other learning aids?*

Recently, educators have defined three different aspects of the word "curriculum." They refer to the written curriculum—that which is contained in the goals, objectives, and scope and sequence charts in our schools—as the **intended curriculum**. They note that this intended curriculum is distinct from the **actual curriculum**—that which is filtered through the teacher and is taught in the classroom itself. Finally, there is the **achieved curriculum**, what is learned by students and usually reflected on test results. In order to understand why a particular curriculum has or has not been achieved, it is necessary to examine how the first two terms are understood and employed.

Although a written curriculum exists in many schools, the assessment offers an opportunity for school staff to come together to review and revise, if necessary. Using the descriptions contained in the *Description of Test Content and Reporting Categories* and the appropriate sample items as guides, the committee should consider the material covered in their school(s) through their curriculum objectives and instructional materials. The subcategories in each subject area represent different types of knowledge, skills or kinds of thinking. Committees should look at these categories and ask:

> *Does this content or type of thinking match our current list of curriculum objectives? Should it? If so, by what grade level? For all students?*

The intended curriculum is not only reflected in a set of written objectives. To be meaningful, it must also be supported by textbooks, curriculum materials and other learning aids. At this stage, when examining the intended curriculum, it is important that committees go beyond what it written to what actually exists for teachers to use and how it is interpreted in learning materials.

Each school must decide for itself what aspects of the subject are most relevant and beneficial for its students. This will depend not only upon the characteristics and previous experiences of the students, but also upon the particular emphases of your curriculum and the resources available. Remember that the assessment was designed to include all the skills and concepts that are considered appropriate in the subject area tested. Given the broad scope of the assessment, it is highly unlikely that any school would be able to cover thoroughly every subcategory, nor would such an endeavor be productive given the time available.

On the other hand, it is important to consider your relative performance on the different subskills. Very low scores can be flags for attention. Since the assessment includes very easy as well as very difficult items within each subskill, a low score suggests that your students may be missing out on fundamental concepts within the subject area as a whole.

Question 4: Is this topic or skill a part of the actual curriculum?

- *Is this skill or topic actually being taught in the classroom? To what level of mastery?*
- *Are there adequate resources?*
- *Are teachers interested and supportive of this curriculum?*
- *Is there the support for teachers, including in-service?*

If the skill involved is one that has formed part of your intended curriculum and remains an area of weakness, it is important to examine the actual or delivered curriculum. In other words, is the skill being taught in the classroom and how is it being taught?

There are many reasons why content areas or skills are not taught or are taught sketchily. These include lack of time, lack of supporting materials, lack of interest on the part of the teacher or students, and lack of confidence by the teacher that s/he can teach it effectively. Each reason carries its own solution. For example, teachers may believe that the topic is inappropriate for their students or a portion of their students. They may believe that the topic is untimely, or presupposes experiences that children have not yet attained. On the other hand, the skill or topic may not be taught bcause of lack of resources. Books or appropriate materials may not be available. Teachers themselves may not have sufficient training to feel competent to teach it to the degree that ensures learning. To acknowledge why a skill or topic is not being taught is as important as discovering whether it is being taught.

The teachers' questionnaire should be a valuable source for promoting discussion. We have encouraged schools to keep those questionnaires (returning only the answer sheets) so that they could be used, with the state summary report, to structure discussion on instructional methods and the actual content of instruction. At the fourth and eighth grade levels, these questionnaires contain actual items which were used on the assessment. It will be useful to confirm if these items reflect the kind of knowledge that you expect your students to know and understand and to what extent consensus exists among teachers of different classes.

In a small setting in which thoughts and feelings can be expressed freely, it may be possible for the group to discuss each of the objectives in turn. In other settings, it may be more useful to conduct a simple written survey, asking each teacher to indicate to what extent (mastery, introductory, or reviewed) each of the objectives is taught in each of his or her classes. In any event, keep your discussions frank and nonjudgmental. Do not set out with the expectation that every subskill in the assessment (or even in your curriculum guide) can be taught to mastery by every teacher. Instead, keep track of the reasons why objectives are not being taught. Consider them as problems to be solved, not as "excuses" for a job not done.

Question 5: What are the other factors affecting performance?

If the objective is in both the intended and the actual curriculum, but students are performing poorly in relation to their performance in the subject as a whole, you must ask another set of questions.

- *Do our students understand the concepts as well as we believe they do?*

The assessment was designed to reach beyond factual knowledge and to tap students' understanding of concepts and their ability to apply those concepts to familiar and unfamiliar situations. In many instances, the items differ from those questions found in textbooks at the end of chapters, and neatly tied in with the previous instruction. Students who are adept at answering the latter are often unprepared for more challenging questions in different contexts. The *State Summary Report* discusses some of the discrepancies that occur between students' knowledge of facts and their performance when asked to use those facts in solving problems.

Classroom discussion can also give false information when teachers consistently ask for correct responses. For example, it has been observed that students' lack of understanding of mathematical and scientific terms is often masked by their ability to supply the correct term when asked. Furthermore, in classroom discussions, if teachers call predominantly on volunteers who know the answer, they may get an inflated impression of how the class is doing as a whole. Some close questioning of a wider group of students may give a more representative assessment of progress.

At the eighth and twelfth grade levels, students were asked to give a general indication of the grades that they receive at school. The assessment scores for students responding to each category are given for school (when the number of students is greater than 20), district and state. This comparison will give you some indication of possible grade inflation (or deflation) among the teachers in your own school. Although some students may exaggerate their grades, it has been found that they are generally quite accurate in their reports, and the overall average response is a reliable indication of grade achievement.

In addition, the results from the open-ended sections of the assessment may suggest ways teachers might use open-ended questions to assess their students' understanding of different topics. Copies of the reports on these results will be sent to all schools early in 1989.

- *Are our expectations too low?*

Students may be capable of more than we demand of them. For example, studies have shown (and our results have confirmed) the strong influence of prior knowledge in many "thinking" tasks. When students have knowledge of the content area, they are able to interpret visual data and to answer comprehension questions that they find difficult in other contexts. In other cases, students often use informal knowledge to respond correctly to problems in areas not covered in the curriculum. This suggests that expectations of students' performance may limit what we allow them to learn.

- *Is learning articulated throughout the grades and reinforced across subject areas?*

Although the assessment takes place at a particular grade level, it measures all the learning that has taken place up to that time. Students may forget unconnected facts, but we would expect that their basic understanding of the subject would continue to be applied to more recent instruction. On the other hand, one of the most important findings of the assessment is the lack of reinforcement of learning across subject areas, despite general themes that permeated all subjects. The extent to which subjects are interrelated throughout the curriculum is discussed in the *State Summary Report* where specific examples are given. Schools should study this report and examine their own instruction for evidence that writing is not isolated to language arts, graphic interpretation is not the sole province of the science teacher and reading is taught across content areas.

- *Are we attempting to reach beyond school gates to involve parents and others in promoting our objectives?*

The student questionnaire results give evidence for the strong association between out-of-school activities and performance on the assessment. Average assessment scores are given at state, district and school levels for those students who responded in different ways to questions regarding free time and work activities. The percentage of students in your school who responded to the various options is also given to help you compare the activities of your students with others.

Despite the fact that the school has a limited role in affecting student behavior outside of its walls, it can encourage the reinforcement of learning at home. The strong effect of social factors such as parental education may be due, in large measure, to this kind of reinforcement. For example, the statewide summary report shows that certain student activities are associated with performance. That these activities (e.g., reading for pleasure, television watching, etc.) are related to achievement does not mean that they cause achievement. Nevertheless, students who spend their time outside of school applying their instruction in different contexts are essentially extending and reinforcing what they have learned during the school day.

In addition, schools have the opportunity of bringing the outside world into the school. Class trips, activities based on practical and meaningful problems, guest speakers—all contribute to understanding the relevance of school learning to everyday life.

Final Steps: Preparing an action plan

- *Does the plan document the most important weaknesses? strengths?*
- *Is the plan based on thorough diagnosis from credible evidence?*
- *Are steps/recommendations/plans for proceeding clearly specified?*

- *Are resources, participation and time delineated? realistic?*
- *Is an evaluation plan for determining the effectiveness of the proposed plan detailed?*

If your plan is to be effective, there are some important points to remember. One is the need for enlisting the support of all involved. To the greatest extent possible, order your priorities on the basis of consensus. Unless there is general interest and enthusiasm for the effort, little will be accomplished. Secondly, it is important to be realistic in terms of the resources and human effort that will be involved. Before mounting any effort, review your textbooks and available materials to make sure that you have the resources to teach the skills and content that you have chosen. Be prepared to spend more time and energy than anticipated on instituting the new areas of instruction. Finally, don't concentrate on a single year. Skills and knowledge are cumulative. It is important that curriculum objectives, however specific, be seen as the logical extension of earlier learning, to be reinforced in the later grades.

In a complex process such as described here, it is sometimes possible to lose the way. Groups become distracted; other commitments take precedence. The impact of the assessment results begins to recede. For these and other reasons, it is important to do two things: set a time line and plan a report.

Setting realistic deadlines for stages in your evaluation and for performance goals in your action plan will strengthen your commitment to the project. A general time line can be anticipated, with deadlines for specific steps, such as teacher surveys or reviews of textbooks, to be implemented along the way. The fact that you have a sequential plan and regard it seriously will help participants feel a sense of progress.

Secondly, regular progress reports to faculty and parents will help focus attention on the overriding questions of "what have we learned in our evaluation?" and "what are we doing about it?" Reports should address perceptions and problems, as well as more tangible results. They will form an important public record of your progress in school improvement.

CHAPTER FIVE
CASE HISTORIES

In the spring of 1988, the Department surveyed all schools that had taken part in the assessment, asking if they had used the results of the assessment for an evaluation of their curriculum. Of the 1050 schools which replied, approximately half responded affirmatively, stating that they had used the results for review and improvement. In more extensive questioning, we were struck by the flexibility of their approaches. It was obvious that schools looked at the assessment in terms of their own perceived needs.

This chapter describes four school systems which, although generally following a similar procedure, focused on different aspects of the assessment results. All have generously agreed to share their material with us and all are willing to discuss their procedures with others who are interested in embarking on a similar process.

Tewksbury

The school system in Tewksbury concentrated on the areas of mathematics and reading. Although the system assumed that teachers followed the scope and sequence chart outlined by their basal reading program and adopted math series, they were aware that the actual, or taught, curriculum often contrasts with the intended curriculum of textbooks and curriculum guides. In other words, individual teachers often modify their instruction according to what they perceive to be the needs of their own pupils. For effective changes to be made, it was important to know what was actually taught, to what extent, and to whom.

Since the assessment reflects cumulative learning rather than the curriculum in any particular grade, detailed information was sought from all teachers in the system. Large reporting categories were broken down to the finer objectives that were delineated in the Department's 1986 publication, *Description of Test Content and Reporting Categories*. These were circulated to grade 1 through 12 teachers, who were asked to supply the following information for each objective:

- the total amount of time spent in instruction
- the level of mastery expected: readiness, introduction, developmental, maintenance
- the average achievement level of the focal class
- the time during the school year when the objective was taught.

This information was then compiled and summarized (see example below) to be used as the basis for discussion of curriculum change. With components of the actual curriculum laid out on paper, it was obvious that, despite common textbooks and scope and sequence, there was great variability in the emphasis given to the various topics. Furthermore, not only were there differences among

teachers at the same grade level, the amount of emphasis was not necessarily developmental throughout the grades. For example, a great deal of time was spent on some skills in the early grades, then not touched upon until later grades when they were reintroduced at considerable length.

Sample from the Informational Summary of Information on Assessment Reporting Categories *by Tewksbury teachers.*

MEAP OBJECTIVES CONSENSUS BY GRADE

READING

GRADE THREE:

Vocabulary:

3.1.1 Identify synonyms and antonyms.

This is taught in Grade 1 for five half-hour blocks using the process of Readiness. The medium used is text and the class skill is average. It is taught in the third term.

This is taught in Grade 2 for five half-hour blocks using the process of Development. The medium used is text and the class skill is average. It is taught in the second and third term.

This is taught in Grade 3 for three half-hour blocks using the process of Maintenance. The medium used is text and the class skill is average. It is taught in the third term.

3.1.2 Determine the meaning of a word that has multiple meanings, depending on its use in a sentence.

This is taught in Grade 1 for five half-hour blocks using the process of Development. The medium used is text and the class skill is average. It is taught in the third term.

This is taught in Grade 2 for nine half-hour blocks using the process of Development. The medium used is text and the class skill is average. It is taught in the second and third term.....

The summary of information not only gave teachers important background on the variability in instruction, but it formed a basis for curriculum revision. Teachers used it as a discussion paper as they met to form a consensus on instructional time and objectives. Together, they considered such questions as:

- *How many blocks of time should be devoted to this objective?*
- *How does it fit into the instructional sequence?*
- *At what level should we expect mastery for the average child?*

Again, the actual curriculum as reflected in the informational summary was compared not only with the scope and sequence of the intended curriculum but also with the consensus curriculum that resulted from their workshops.

According to Richard Griffin, principal of Tewksbury Junior High School:

This analysis during our released-time workshops should prove helpful in two ways. First, it should lead to improved emphasis on these objectives in current teaching; secondly, it will allow for a comparison when the next set of test results are released next fall. We should be able to tell if this emphasis is related to teaching and eventually shows in test results. At least we can now distinguish our actual curriculum from an idealistic textbook publisher's intended curriculum.

Dr Edward Farley, Assistant Superintendent.

Richard Griffin, Principal
Tewksbury Junior High

Millsbury

Millbury had been satisfied with their school achievement. On the standardized achievement tests that were routinely administered, students performed reasonably well. However, when the assessment scores were reported, Millbury was surprised at their results, particularly at the high school level. They wanted to determine the reasons for the discrepancy between the two sets of test results.

They began with the program information that had been reported in the student questionnaires. Comparing their eleventh grade students to those in similar districts, they noted the disproportionately large number who were in general rather than academic programs. This led to the following questions:

1. Are students' perceptions of their school program realistic? (i.e., Are two thirds of eleventh graders actually in general programs and one third in college preparatory?)
2. If this perception is accurate, why are so few students selecting an academic/ college preparatory program compared to comparable towns?
3. Could there be other factors (in addition to expectations and course offerings) affecting the small number of students selecting a college preparatory program?
4. What is the future impact of so few students selecting an academic/college preparatory program?

These questions, as well as more general ones, led to the formation of a task force to examine issues that might affect performance. This committee was composed of parents, administrators, and teachers. It began its investigation by inviting various groups to appear before it. Asking "What are the issues as you

see them? What are the strengths of the system? What are its weaknesses?", the committee's inquiry soon expanded beyond the eleventh grade assessment results to consider the entire system.

With an initial deadline of the spring of 1987, the committee's work resulted in the following recommendations which initiated major changes in the Millbury school system.

Recommendation 1. A more effective and continuous evaluation of student progress

Result: A more rigorous standarized achievement test was adopted and the district began testing at every grade level. The results of these tests, as well as the Basic Skills and assessment tests, are used to evaluate curriculum on an annual basis.

Recommendation 2. The intergration of instruction at all grade levels

Result: A system-wide curriculum coordinator was hired whose major responsibility was to establish articulation among the various levels.

Recommendation 3. Greater involvement of parents in school policy

Result: A system-wide homework policy was formulated and expectation sheets were initiated. These expectation sheets, which outline the standards for each course, are now distributed to all parents to be signed and returned to the school. Essentially, they form a contract between home and school on the terms of instruction.

Recommendation 4. Stronger control over the sequence of courses that students take

Result: Millbury has increased graduation requirements, including three years of science, social studies and mathematics, to insure that students do not abandon academic courses in their junior year. In addition, there is a continuing effort to increase dialogue between guidance staff and student and parents.

Recommendation 5. A systematic approach to curriculum development and review

Result: An annual process of departmental goal-setting and follow-up has increased accountability in each of the learning areas. New programs in reading and science have been introduced in grades K through 6, and each learning area has begun the process of developing scope and sequence charts throughout the grades.

Recommendation 6. Staff teachers should have a greater role in curriculum development

Result: Teachers are now involved in systemwide committees on curriculum, staff development and testing.

Dr Alfred Sylvia, Superintendent

Dr. David Troughton, Curriculum Coordinator

Pittsfield

Pittsfield is fortunate in having curriculum directors in each of the subject areas covered by the 1986 assessment. After receiving the school and district reports, each of these directors analyzed the districtwide results across all grade levels and reported their instructional implications to each school building principal. Principals, in turn, met with their own staff to relate these reports to their own school population and to review the need for resources, staff training and instructional change.

Students in the Crosby School had performed relatively well, scoring close to the state average and at the top of their Comparison Score Band. However, the principal and his staff noted anomalies in some curriculum areas that were cause for concern. For example, although the school's average score in mathematics was satisfactory, the Curriculum Area Results reflected large variations in performance. While the school's score in mathematical computation was very high, scores in numeration and problem solving were significantly lower with differences of 160 and 100 points. The size of the differential suggested that the curriculum was too narrowly focused on skills at the expense of conceptual understanding. It indicated that students were weak in their understanding of mathematical concepts and in recognizing the underlying numerical operations demanded in verbal problems.

On the basis of this analysis, the staff decided to supplement the school's basic curriculum in mathematics by encouraging more active involvement in mathematical activity. Manipulatives were purchased for use in the early grades. Work with older students focused on the use of language in word problems. In general, less reliance was to be placed on mimeographed worksheets, and more on student activity.

Crosby School also focused on the results of the student questionnaires, noting that the more time students spent in reading for their own pleasure, the higher their score on the assessment. The state summary reported that 53% of third grade students replied that they spent no time in voluntary reading. However, for those who read as little as a half-hour a day, reading scores showed a dramatic increase and continued to show incremental improvement up to 2 hours a day.

This information was used to involve parent groups in efforts to encourage independent reading among their children. *Reading is Fundamental*, an existing federally based reading program designed to encourage reading in grades K-2, was expanded through grade 5. Funds were obtained through the PTO and federal sources for the free distribution of paperbacks to these grades and activities were focused on teaching parents how to motivate children to read independently. As a result, there was renewed emphasis on the reinforcement of school learning through the involvement of parents in the learning process.

Dr. William Travis, Curriculum Director

Eugene O'Brien, Principal
Highland Elementary School (formerly of the Crosby School, Pittsfield)

Freetown-Lakeville

The district Freetown-Lakeville consists of two independent K-3 schools, a district junior high school and a district high school. When Superintendent Nancy Sullivan reviewed the assessment results she was intent on creating improved communication and curriculum integration among these four separate units.

Her first step was to create a council of school administrators to review the assessment results and propose a plan of action. Among its goals were:

- the creation of a K-12 focus for curriculum articulation that would build from year to year;
- improved curriculum management;
- the development of curriculum guides;
- the involvement of 90% of staff in curriculum review and decisions;
- improved assessment results.

When Dr. Sullivan presented the proposal to the four school committees involved, they endorsed it unanimously, and work was begun in January 1987 on the review and improvement of what and how students learned throughout the district.

In addition to the administrative council, the process involved two types of committees that ensured the involvement of all staff. One was a K-12 Steering Committee which was primarily concerned with the coordination of effort and the overall integration of curriculum and instruction throughout the system. The second type were school curriculum committees, including all teachers, which looked at specific subject areas and made recommendations about content and resources. Together, these committees ensured that the resulting recommendations would be specific enough for the classroom teacher and, at the same time, would be consonant with system-wide educational goals.

In March, all professional faculty and staff in the four schools met as a group to review the mathematics, reading and science curricula as they related to the Massachusetts assessment program. The goals for this initial meeting were to make decisions about changes, to plan development, and to develop the concept of K-12 articulation. Focusing on the three grade levels tested by the assessment, school faculty examined each of the specific objectives in light of the existing curricula, recording when it was introduced into the curriculum and the degree of emphasis that was accorded to it. (See Form A, following.) On the basis of these discussions, teachers made prelimary recommendations in regard to possible changes in inclusion and emphasis. At this time, they also noted implications for resources, such as more material or more training.

FREETOWN LAKEVILLE PUBLIC SCHOOLS: ANALYSIS OF ASSESSMENT TEST RESULTS

Date _____

*I = Introduce
M = Master
R = Review
} May use more than one symbol

***Y/NT = In curriculum/not taught
N/NW = Taught/not in curriculum

MEAP Subject: Math

MEAP Grade Level: 7

F-L Grade Level: _____

SUBJECT: _____

**Recommendations should be made for student to show mastery at grade 7 by mid-school year

REPORTING CATEGORIES/OBJECTIVES FOR GRADE Seven	*** IN OUR CURRICULUM Y/N	DEGREE OF EMPHASIS */M/R	CLASS TIME SUFFICIENT Y/N	PRACTICE TIME SUFFICIENT Y/N	** WE RECOMMEND: PLACE IN CURRICULUM Y/N	DEGREE OF EMPHASIS */M/R	MORE CLASS TIME Y/N	MORE PRACTICE TIME Y/N	MORE MATERIALS Y/N	IN-SERVICE EDUCATION Y/N
NUMERATION										
1. Numeration a. place value (whole numbers and decimal fractions)										
b. rounding										
c. interpolation using number lines/ scales										
d. recognition of fractions (common and decimal) as partitions of sets										
e. recognition of fractions (common and decimal) as parts of a whole										
f. equivalent fractions, mixed numbers										
2. Number Theory a. number sequences										
b. common multiples and factors										
c. common denominators										
d. odd/even numbers										
e. prime numbers										
OPERATIONS										
1. Whole numbers a. addition of more than two 2-digit numbers or two larger numbers in both straight computation or word problems.										
b. subtraction										
c. multiplication by two-digit numbers (computation and word problems)										
d. division with 1-digit divisor										

Form A

The results of these meetings were consolidated and sent back to each building. After subject area subcommittees had reviewed and discussed these results, a second round of meetings was then held to formulate final recommendations. These meetings focused on the subject areas. Each objective was again examined and decisions were made about whether it should be placed in the curriculum, the amount of emphasis it should receive, and the training and resources needed for instructional implementation.

Final M.E.A.P. Recommendations

School:_____

Check One: _____ Reading _____ Mathematics _____ Science

For elementary school, record grade level here _____

For middle school, record ability level here _____ & grade level _____

For high school, record: Course name _____

Grades taught at _____

Ability levels _____

Identify reporting category:_____

Identify Objective:_____

_____

_____

To improve mastery at the appropriate grade level, either grade 3, 7, or 11, we recommend the following:

In our curriculum?

_____ Place in curriculum/does not exist
_____ Should be taught/in curriculum but not taught
_____ Put in writing/is taught but not in writing

Degree of emphasis?

_____ Should be introduced at this grade level
_____ Should be mastered at this grade level
_____ Should be reviewed at this grade level

Enough class time?

_____ More class time should be devoted to this objective

Enough practice time?

_____ Students should be assigned more practice time

Proper materials?

_____ We need different resource materials than now exist
_____ We need more of the same resource materials than now exist
_____ We need resource materials/do not have any

Proper training?

_____ We need in-service education in this area to be more effective

Other comments:

The final round of meetings, which included teachers at all grade levels, aimed at a consensus on what should be taught at each grade level. Objectives and recommendations were again reviewed, this time in regard to their implications for total instructional time, instructional material and availability of teaching units. Negotiation between the different grade level and subject area teachers predominated these discussions as the entire instructional program was viewed as a whole. Units that reflected topics that were already part of the written objectives were reviewed for the degree of mastery at each grade level and the time required.

M.E.A.P. Teaching Unit **To Be Emphasized/** Already in Curriculum (in Writing)

School: _____

Subject: _____

Faculty member(s): _____

_____

_____

M.E.A.P. Category: _____

_____

M.E.A.P Objective: Number # _____ & Letter _____

Recommendations:

1. For grade level _____
2. Please check one: _____ I = Introduce
   _____ M = Master
   _____ R = Review
3. Please check one: _____ More class time required
   _____ More practice time required
4. Other: _____

_____

_____

The specific resources needed to implement instruction were noted and sent to each principal for budget allocations.

M.E.A.P. Resources Needed to Implement M.E.A.P. Categories & Objectives

School:_____

Subject:_____

Faculty Member(s):_____

_____

_____

M.E.A.P. Category:_____

_____

M.E.A.P. Objective: Number # _____ & Letter _____

Resources Required to Implement Objective

Please Order

Resource Title	To Order From	Quantity	Unit Price	Total Price

Finally, in cases where there was no written teaching unit to match the objective, in-service time, including paid summer institutes, was provided for teachers to write such a unit. Among the major achievements was in the area of elementary science. Because of the lack of instructional units in one elementary school, a consultant and five teachers joined together to write a complete new curriculum for elementary science, some units of which were adopted by the other elementary school.

As a result of Freetown-Lakeville's extraordinary effort, both intended and actual curricula was changed throughout the grades. It was a major effort, fully supported by each of the parties involved. The school committee generously provided the necessary funds. Administrators provided both financial and administrative support for the teachers involved. The teachers devoted time and energy to serving on committees, reviewing curriculum and designing new units of instruction. According to Richard Pazasis, Director of Instructional Program, the experience has had many spin-offs. As a result of the effort, the K-12 Curriculum Committes are now a part of the educational process. They continue their work by meeting regularly to go through the curriculum, review the existing curriculum guides, update them and make them more effective. Teachers, in turn, are regularly given in-service time for writing curriculum objectives, and determining their philosophy and goals as well as outcomes. Most important, perhaps, is the collegiality that has developed among the teachers within and among the separate schools. The process has tied the elementary schools together and is achieving the articulation that was hoped for.

Dr. Nancy Sullivan, Superintendent

Richard Pazasis, Director of Instructional Program

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Other publications concerning the Massachusetts Educational Assessment Program:

- *Description of Test Content and Reporting Categories*
- *State Summary Report, 1988*
- *Social Studies Report*

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